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MORAL COGNITION IN CHILDREN:
AN EXAMINATION OF THE POSSIBLE IMPACT OF SCHOOL
DIDACTIC PHILOSOPHIES

by

SMIT S. SHAH

A thesis submitted in partial fulfillment of the requirements
for the Honors in the Major Program in Psychology
in the College of Science
and in The Burnett Honors College
at the University of Central Florida
Orlando, Florida

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Thesis Chair: Dr. Valerie Sims

ABSTRACT

The purpose of this thesis is to examine the effects that Montessori and public school environments have on the moral cognition of children and to assess the differences using modified moral dilemma stories. Through the analysis of these children's responses on moral dilemma stories this thesis reveals that there are stark and statistically significant differences in the children's responses on two of the three stories. The Montessori children scored higher on the morality level and the answers reflected altruism over authority on story one and story three. Through these results the researcher surmised that school environment can have an impact on moral cognition of children and that further research needs to be done in this field.

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INTRODUCTION

Imagine being able to look inside of a child's mind as they develop and grow what would people discover about development? This has been the driving question behind developmental psychology since the days of Swiss psychologist Jean Piaget. If people can learn more about how children develop, then in turn from this information, more could be learned about the reason why humans act and behave the way that they do. The interests of developmental psychologists lie in brain development, language development, moral development, etc.

While over the last hundred years there has been tremendous progress in developmental psychology, they have just begun to scratch the surface. There are still many questions left unanswered. It is in these gaps in understanding that this thesis fits in. This thesis attempts to understand the relationship between how children develop morally and one factor that can affect this development, namely school didactic environments. Before diving into the two types of schools used in this study, one must first understand what is meant by morality and where it comes from.

Morality

Morality psychology has been a mental phenomenon that has been the subject of much interest since the beginning of recorded history. Almost every philosopher from Plato to Thomas Aquinas to Immanuel Kant has tried to tackle the idea of morals, where they come from, and how people think about them. Because of this, there are many different theories of where the

human sense of morality comes from -- whether it is from religion or just innate knowledge that people are born with. The version of people's moral sense that will be focused on is that prescribed by evolutionary biologists because it is the only one that has scientific evidence supporting it. Recent work in the fields of evolutionary biology, ethology, primatology, and evolutionary psychology has come to suggest that humans most likely get their basic sense of morality through the process of evolution.

In order to better understand how evolution could shape something such as ethics imagine living as part of a nomadic tribe around a hundred thousand years ago. The tribe consists of twenty people. It'll be called tribe A. Meanwhile, a neighboring tribe, tribe B, has a population of forty people. The landscape is harsh and the environment even more so. Surviving in these conditions is very difficult and requires special strategies to increase the chances of survival. The people of tribe A are very cooperative -- they help each other out and display altruistic behavior towards other members of the tribe. The people of tribe B have developed a culture of selfishness and individualism. One day ten of the tribesmen from tribe A go hunting while six of them stay behind to take care of children, but in tribe B the members have to do both on their own. The chances of the members of tribe A surviving are greater since many people are working together to ensure each other's survival. The members of tribe B are only looking out for themselves with no interest in the survival of the group -- they might as well be forty different tribes consisting of one person each. While this is an extreme example, it displays the basic principles behind the idea that the people who were more cooperative and altruistic (both traits that allowed them to survive and thus reproduce) were more likely to pass on that kind of behavior whether through genes or culture. Here is a less extreme example,

within tribe A nineteen of the twenty members are this way but one of the tribesmen is like the people from tribe B, what would happen? Ten of them go out for the hunt again while the other six including the person like tribe B stay behind to take care of the children. This person does not take care of the children and rather just starts playing with rocks, when the hunting tribesmen come back the tribesmen that were supposed to take care of the children would report this behavior. Therefore, the lazy tribesman would earn a nasty reputation amongst the tribe as someone who is not willing to do work. This reputation is more detrimental than one would imagine. The tribes-people would be less likely to interact or help that person in the future should he or she continue this course of selfishness. The best choice that person has in order to survive is to either start completely cooperating or cooperate just enough to the point where they can survive. This is put very succinctly by zoologist Richard Alexander:

Humans should affirm cooperation only so long as the cost of the sacrifice is less than the benefit of an indirect compensatory return from someone else, times the increased likelihood this will happen from reputational enhancement. According to indirect reciprocity theory, we're as unselfish as it pays to be; we're as selfish as we can get away with.

(Schloss, 2004, p.11)

As is illustrated by the example, some of the main tenants of evolutionary ethics are reciprocity, reputation, and altruism. These are base, almost instinctual, behaviors that all humans with undamaged brains are said to have. There are others, but the main ones this thesis focuses on are reciprocity and altruism. Altruism as defined by the champion of the field of Sociobiology E. O. Wilson is, "a self-destructive behavior performed for the benefit of others that may be entirely rational, or automatic and unconscious or conscious but guided by innate emotional responses" (Bradie, 1994, p.107). Wilson points out a very important aspect of

altruism, as guided by evolutionary ethics, by stating that it is guided by “innate emotional responses”. Emotions lie deep within the paleomammalian complex of the brain, evolutionarily the second oldest part of the brain which houses the limbic system (Sagan, 1977, p.58). If these ethics are rooted deep within the limbic system then they would be very powerful, as are human emotions, and hard to ignore. It would also suggest that perhaps even some if not most animals would have some sense of this innate altruism.

It has been argued that true altruism cannot truly exist. George R. Price, a famous research scientist, developed what is called the Price equation. This covariance equation generated the change in allele frequency of a population. Through this equation he was able to show that organisms are more likely to show altruistic behavior towards each other if they were genetically similar. The further genetically removed two organisms are the less likely they will show altruism towards each other. Therefore, altruistic behavior is not truly selfless but rather an adaptation put in play by evolution to promote one’s own genes (Frank, 1995). Many people, however, would probably argue that even if true altruism does not exist, those types of behavior regardless of motivation do exist – therefore it might be useful to just call it altruism.

If this is the nature side of things, then what is the nurture aspect of it? From basic daily observations one could divine that there are more to ethics than just these base qualities, and that people develop a sense of moral right and wrong over time. This is true, however this moral sense tends to be more related to the type of society the person grows up in rather than a universal like the evolutionary side of ethics are. In order to discuss this other side of ethics the names of Jean Piaget, Lev Vygotsky, and Lawrence Kohlberg must be brought up.

The Swiss psychologist Jean Piaget was one of the first people to develop a theory for cognitive development in children. Through this theory there were four stages of cognitive development that all children across the world went through step by step. The first stage was the sensorimotor stage which was from birth till the age of two. In this stage the starts to experience the world through movement and the senses. The second stage was the preoperational stage which was from two years of age to seven. During this stage children are beginning to develop their rational thinking abilities but are predominantly engaging in “magical thinking” in that they use illogical thinking to rationalize the world. The third stage is the concrete operational stage and lasts from age seven to eleven. In this stage the children start thinking logically but their thoughts are limited to very concrete ideas. The final stage is the formal operational stage which is from age eleven to sixteen and onwards. During this stage children start to develop abstract reasoning abilities (Piaget, 2003). These stages are important in understanding morality because one would expect children to have a very crude sense of morality in the first two stages but would really start to develop during the latter two stages. In fact, through his theory of cognitive development he was able to come up with a theory on moral development in children. For Piaget there were a number of ideas that made up moral judgment. The first being immanent justice which is the idea that people will get what is coming to them. The second is moral realism, which is the idea that acts should be judged based on consequence not motive. The third is the belief that punishment should be retributive versus the belief that punishment should be restitutive – meaning that punishment should be either for revenge or to restore the balance. The fourth is acceptance or rejection of the idea that the more severe punishment is more efficacious. The last is the idea of guilt by association or individual responsibility (Johnson, 1962). The

biggest pitfall to the validity of Piaget's work was that he did not take culture or context into account. He assumed that all children, anywhere in the world, developed through these four stages and developed through them in order.

Lev Vygotsky was Piaget's biggest opposition, he believed that Piaget did not account for the social context in his theory of cognitive development. For Vygotsky, all learning took place within the social context in that society plays a very large role in teaching children what they need to know in order to succeed in that particular culture (Smidt, 2009, p.14). One of the key processes by which children learn is called internalization, which is the knowledge gained by the children from their interactions with significant people in the child's life. This is the shared knowledge of a culture. While Vygotsky himself did not have a specified theory for moral development, through the tenants of his other theories it can safely be surmised that the children learn their morals in regards to the societal context in which they grow up.

One cannot talk about moral development in children without talking about Lawrence Kohlberg. Kohlberg was heavily influenced by Piaget's theory of cognitive and moral development. Through his own research, Kohlberg came up with six stages of moral development which comprise three levels; pre-conventional, conventional, and post-conventional. The first stage is obedience and punishment avoidance in which the children focus on the direct consequences of actions on themselves; "the physical consequences of action determine its goodness or badness" (Kohlberg, 1971, p.91). The second stage is the instrumental relativist orientation stage in which "right action consists of that which instrumentally satisfies one's own needs and occasionally the needs of others" (Kohlberg, 1971, p.91). These two stages

make up the pre-conventional level. The third stage is interpersonal concordance orientation in which “good behavior is that which pleases or helps others and is approved by them” (Kohlberg, 1971, p.92). The fourth stage is the law and order orientation in which morality is based on maintaining societal order and fixed rules. These two stages make up the conventional level. The fifth stage is the social contract orientation in which right and wrong are identified based on individual rights and standards that have been agreed upon by society. The sixth stage is the universal ethical principle orientation in which right and wrong are defined by the self-chosen ethical principles which can be universally applied. These last two stages make up the post-conventional stage (Kohlberg 1971, p.91-2). The way that Kohlberg measured these stages is by implementing the use of moral dilemma stories in which there is a narrative that presents a moral dilemma to the participants and they have to answer what they think the person should do and why.

The Piaget and Kohlberg theories of moral development are based on a Rationalist approach, “the power of a priori reason to grasp substantial truths about the world” meaning that moral knowledge and moral judgment are reached by a process of reasoning and reflection. Johnathan Haidt (2000) argues against this approach and provides a different one, the social intuitionist model. This model refers to the idea that there are moral truths. He makes a distinction between moral reasoning and moral judgments by saying that the judgment happens immediately and the reasoning usually comes after that. In his study they had a moral dilemma story dealing with a brother and sister and incest. He explains the process thusly:

“In the social intuitionist model one feels a quick flash of revulsion at the thought of incest and one knows intuitively that something is wrong. Then, when faced with a social

demand for a verbal justification, one becomes a lawyer trying to build a case, rather than a judge searching for the truth.”

(Haidt, 2000, p.2)

This idea of moral intuition sounds strikingly similar to the idea of evolutionary ethics. In fact, it would make sense, talking in terms of evolution, that people would be repulsed by the idea of incest because it is genetic catastrophe. Even if the two people are consenting adults who use contraceptive measures, this innate sense of wrong is undeniably powerful and unable to sway to logic. This idea of being able to separate the moral judgment from the moral reasoning gives a way of synthesizing the theories of evolutionary ethics and Kohlberg’s moral cognition.

Through this synthesis, it is easy to see why and how culture and the environment around which one grows up can be important. The two environments of importance to this thesis are that of the Montessori schools and that of the public schools.

Montessori School

The Montessori Method of teaching was first established by Maria Montessori in the early twentieth century. Her days as a young medical student saw her garnering an interest in how living beings develop and form. As she continued this interest and worked with children and young adults she began to see that there were specific stages development, much like Piaget and Kohlberg would later recognize. She identified four planes of development; 0-6 years of age, 6-12 years, 12-18 years and 18+ years. Each of these different planes has specific sensitivities to specific goals for development in children (Lillard, 1996, p.5). Dr. Montessori quickly recognized that the school system at the time did not pay any attention to these developmental planes and that in almost every country in the world the first plane is ignored. Once they do start their education it is a linear ascent steadily increasing in difficulty each year

(Lillard, 1996, p.7). She thought that the schooling should correspond with the child's developmental periods. Originally she wanted to work with elementary school kids but because a majority of these children were in school, she would not get a chance to work with them until later on. However, Dr. Montessori finally received an opportunity to put this theory into practice by teaching preschool children in a reclaimed public-housing project. Her results with these children would later provide the backbone of her educational philosophy. After this initial experiment she took her ideas abroad and developed the method through trial and error in places as diverse as Rome, India, Spain, the Netherlands, and the United States (Lillard, 2005, p.18).

Out of her educational philosophy, Montessori was able to come up with eight principles upon which to build the curriculum and educational experience of the child.

1. That movement and cognition are closely entwined, and movement can enhance thinking and learning
2. That learning and well-being are improved when people have a sense of control over their lives
3. That people learn better when they are interested in what they are learning
4. That tying extrinsic rewards to an activity, like money for reading or high grades for tests, negatively impacts motivation to engage in that activity when the reward is withdrawn
5. That collaborative arrangements can be very conducive to learning
6. That learning situated in meaningful contexts is often deeper and richer than learning in abstract concepts
7. That particular forms of adult interaction are associated with more optimal child outcomes
8. That order in the environment is beneficial to children

(Lillard, 2005, p.29).

These eight principles are deeply ingrained in the Montessori education system. One of the most important of these eight principles is the second one. This principle allows the child to self-regulate their learning -- meaning that the child is encouraged to follow his or her interests while at the same time covering a certain amount of work that is appropriate for his age and pace

(Orem, 1971, p.39). This is one of the biggest differences between the Montessori approach and the more traditional schooling approach that is utilized by the public school system. The child is always learning through interactions with the environment, with the teacher being a part of that environment. In this sense the teacher is never there to really teach anything, but serves as a guide to help facilitate the child's learning (Lillard, 1996, p.77-8). While much of the curriculum of the Montessori philosophy is similar to that of the public education system; math, language, science, etc., it differs from the public education system in how the children learn.

In the Montessori philosophy, it is the second plane of development ages (6-12) that the moral mind first starts to truly take shape. It is in this period that the children develop higher brain function required for reasoning and with this new found power the children can compare, deduce and arrive at conclusions. A child of six becomes a reasoning explorer of the abstract and this extends to the development of a moral sense. They question what is right and wrong and this process of discovery at its preliminary stages involves questioning their parents about their responses to particular situations (Lillard, 1996, p.45). The teacher in the Montessori classroom never directly interacts with the child to scold or teach them a lesson.

Conflict resolution is another way that the children learn morals in both the public and Montessori schools. The Montessori schools however, have a very different way of conflict resolution than public schools do. Three reasons that the Montessori Method is great for conflict resolution are, "an environment conducive to both self-directed individual learning and cooperative group learning; the decentering of the teacher, and sequential, progressive skill development" (Hedeen, 2006). These three reasons lead to better conflict resolution among the

Montessori children. The Montessori system is designed specifically so that the children themselves come up with their own resolutions to conflicts. This produces cohesion between the students and allows the children to learn from each other rather than having the teacher give them the resolution to the conflict; they learn much more from this than from directly being told the answer.

Public School

In order to fully understand the American public school system, a better understanding of its history must be presented; this starts with Prussia. Prussia was the first country in the world to have a mandatory education system in 1819 (Nasaw, 1979, p.61). Many leaders from around the world observed how well the system worked and went to see it in action, among these people was Horace Mann. Mann observed the system and the philosophy behind it in 1843, and brought it back with him to the United States where it was implemented in Massachusetts. After the success of the system in Massachusetts, many other states followed until finally Mann developed the first mandatory school system in the United States by 1852 (Nasaw, 1979, p. 30-3). By the 1900's roughly 30 states had compulsory public schools for children ages 8 to 14. By 1918 every child had to complete elementary education. The entire idea of the public school system was centered on the idea of every child having the same educational opportunities. In order to consolidate the educational system, the burden was taken from the state to the federal level with the advent of the Department of Education. Now there are heavy federal regulations as to what must be taught to children specific to the grade. The states now had the job of implementing this curriculum passed down by the Department of Education. This is the reason why some states have better educational systems than others. Some states do a better job of implementing them

and can afford better schools due to taxes. This thesis focuses on the public school system in Florida.

One of the biggest recent changes to the public school regulations put forth by the United States Department of Education would be law PL 107-110, better known as the No Child Left Behind Act of 2001. This act further standardized education and is meant to ensure equalized education to all children. While in theory this is a very just and good action, the implementation of it comes at a terrible cost. Each school is held accountable for its children's performance of standardized tests from grades 3-10 (United States Department of Education, 2004). There has been research showing that these types of testing lead to dissatisfaction and stress for the teachers (Smith & Kovacs, 2011). Therefore, this would affect how the teacher interacts and teaches the class.

Since this thesis focuses on children grades 3-6, that is the particular academic curriculum that shall be examined. In grades 3-6 all children are generally taught arts, health education, language arts, math, music, physical education, science and social studies. However, the particular thing to focus on will be anything that would help children develop a sense of moral cognition. In 3rd grade the children are generally taught to express the feelings they have, how to get along with others, and the rights and responsibilities of a citizen in a community. In 4th grade they go more in depth in the rights and responsibilities of citizens in a community. In 5th grade and 6th grade there is nothing explicitly taught that would develop the child's sense of morality (Carpenter, 1991, p.16-26). While these ideas do not directly deal with morality, they help develop a sense of morality. There is also a theme of teaching the children obedience to the

teacher that is not seen in the Montessori curriculum. However, there is something lurking beneath the surface.

While morality is not something that is explicitly taught outright, unless dealing with conflict resolution which will be discussed in the next paragraph, it is pseudo-explicitly taught. This is something that Kohlberg noticed in his studies of morality on children. He states that even though teachers in public schools have never had any training in moral education, “They are constantly acting as moral educators, because they are continually telling children what to do, continually making evaluations of their behavior, continually monitoring their social relations in the classroom...” (Kohlberg, 1971, p.18). Kohlberg refers to this as the “hidden curriculum”. The American public education system works under the assumption of relative values, meaning that public schools cannot explicitly teach moral values without infringing on the rights of minority groups. This allows parents to choose what sort of moral education they want their children to have by sending them to a religious school, or a military school or any other school which does teach moral education (Kohlberg, 1971, p.24). By having a teacher say something like, “good children use nice words” they are inadvertently putting in the children’s mind that by saying nice words they are being good or moral.

Conflict resolution as mentioned in the previous paragraph is something of importance to this thesis. As discussed in the Montessori school section, their way of resolving conflicts involves self-regulation and allowing the children to come to a solution on their own. In contrast, the public school method of resolving conflicts often involves seeking an authority figure such as a teacher, guidance counselor, or principal. Generally it is one of these people that

suggest a resolution to the conflict rather than having the child come up with their own solution (Lindsay, 1998). It has been shown in research that conflict resolution works best when it is implemented on five different levels – student disciplinary system, curriculum, pedagogy, school culture, and home and community (Sandy, 2001). This means that while there are multiple levels upon which the conflict resolution depends, it all leads back to authority figures. This is not to say that this type of conflict resolution is without benefits. One meta-analysis of conflict resolution in public schools shows that it reduced anti-social behaviors in youth (Garrard & Lipsey, 2007).

Hypothesis

While there have been many studies done on morals between public school children and catholic parochial school children, there have been few to none done in regards to the Montessori programs; the latter being one of the biggest influences in conducting this thesis. There have been some studies done on scholastic achievement between Montessori children and public school children that show that the Montessori children tend to perform better (Manner, 2000).

Based on the research gathered in this thesis and presented in the introduction, there will be a difference in the children's morality level between the Montessori and public school. There will also be a difference in whether the children's answers reflect authority or altruism. If this research holds true for the subjects of this thesis, then H_1 is that Montessori children will have higher morality level scores than the public school children. H_2 is that Montessori children's answers on the moral dilemmas will reflect altruism more often than authority than the public school children's answers.

METHOD

Subjects

This study used 52 children (19 males and 32 females, no sex information for one of the children) grades 3-6 from Maitland Montessori (8 children), Tuskawilla Montessori (15 children), and East Lake Elementary (29 children) schools in Orlando, Florida. There were a total of 22 children for the Montessori condition and 29 for the public school condition. The ages for the children ranged from 8 to 12 years old.

Materials

While Kohlberg's original study used children age ten and up, the study performed in this thesis uses children age's eight to eleven. Kohlberg's original moral dilemma stories however were unsuited for this age group and thus a revised version had to be used. Lee C. Lee (1971) used a modified version of Kohlberg's stories when working with children kindergarten to sixth grade. These stories measured three different dynamics: authority vs. peer, authority vs. altruism, and peer vs. altruism. This thesis only focused on the authority vs. altruism stories because of the interest in evolutionary ethics. The children's responses to the stories were measured based on a modified Kohlbergian scale of moral development. Level one was that of authority where a rule is right because it is a rule. Level two is authority bound but awareness of reciprocity exists where even though the child is aware of reciprocal peer relations; there is still a tendency to solve conflicts adhering to authority. Level three is that of reciprocity which involves the mutual give and take and respect for other's rights. Level four is societal order where conformity to authority is to maintain societal order not just to obey. Level five is the

ideological level equivalent to the sixth Kohlbergian stage where it is based on principles rather than just rules or laws (Lee, 1971, p.142-3). The three stories used can be found in Appendix A.

A questionnaire was sent home with the children along with the informed consent forms. The questionnaire's purpose was to help factor out extraneous variables and to find any other relations aside from just the school type. The questionnaire included such items as religion, political orientation, income level, etc. At the end of the questionnaire was a copy of the Parental Authority Questionnaire Revised (Reitman, 2002). The purpose of this questionnaire was to discover if there was a link between if the children answered more towards authority or altruism and how the parent scored on the PAQ-revised. This questionnaire along with the PAQ-revised can be found in Appendix C.

Procedures

The children who returned the informed consent were brought to a comfortable empty room in the school and read each story and told to write down their answers to the questions asked at the end of each. There were also told to write their identification letter and number along with their grade at the top of this paper so as to properly link the individual subject to the questionnaire that their parent had filled out. Although the children were tested as a group putting together all the grade groups, the children were instructed to not share their answers with anyone else and to remain quiet so as to not introduce peer influence on their answers. They were also told that the researcher was only interested in what the individual child thinks and to not worry how their neighbor had answered. There was no time limit given to how long the children had to answer the questions in each story. Once all three stories were read by the lead

research, and all the children had answered the questions, they were told to put their paper into their packet which included their parent's questionnaires and to leave them on the table. The researcher or research assistant then collected the packets.

The way that the moral dilemma stories were set up, the child could answer towards either altruism or authority. The child was given a score of a 0 for authority or a 1 for altruism and this was a score that was independent of the morality score. The morality score was a modified version of Kohlberg's original. In it there were five sequential levels – authority, authority bound but awareness of reciprocity, reciprocity, societal order, and ideological. The child was given a score of 1 to 5 based on which level their answer best fit into. The scoring was done by the lead researcher and was done blind to the subject condition. For a more in depth look at the moral judgement scoring criteria please refer to appendix B.

RESULTS

Morality Scores

To examine the relationship between the school type and the children's responses on the stories an independent subjects t-test was calculated for story 1. This yielded a significant difference in the morality scores between the Montessori ($M = 2.87$, $SD = .82$) and Public ($M = 2.38$, $SD = .78$) students, $t(50) = 2.21$, $p = .03$. An independent subjects t-test was also calculated for story two. This did not yield a significant difference in morality scores between the Montessori ($M = 2.13$, $SD = .97$) and Public ($M = 1.76$, $SD = .79$) students, $t(50) = 1.53$, $p = .13$. An independent subjects t-test was conducted for story three as well. This yielded a highly significant difference in morality scores between the Montessori ($M = 2.39$, $SD = 1.03$) and Public ($M = 1.48$, $SD = .83$) students, $t(50) = 3.52$, $p = .001$.

Morality Level Means and Standard Deviations

Condition	<u>Story 1</u>		<u>Story 2</u>		<u>Story 3</u>	
	Mean	Std.	Mean	Std.	Mean	Std.
Public	2.38	.78	1.76	.79	1.48	.83
Montessori	2.87	.82	2.13	.97	2.39	1.03

Figure 1: Morality levels in all three stories

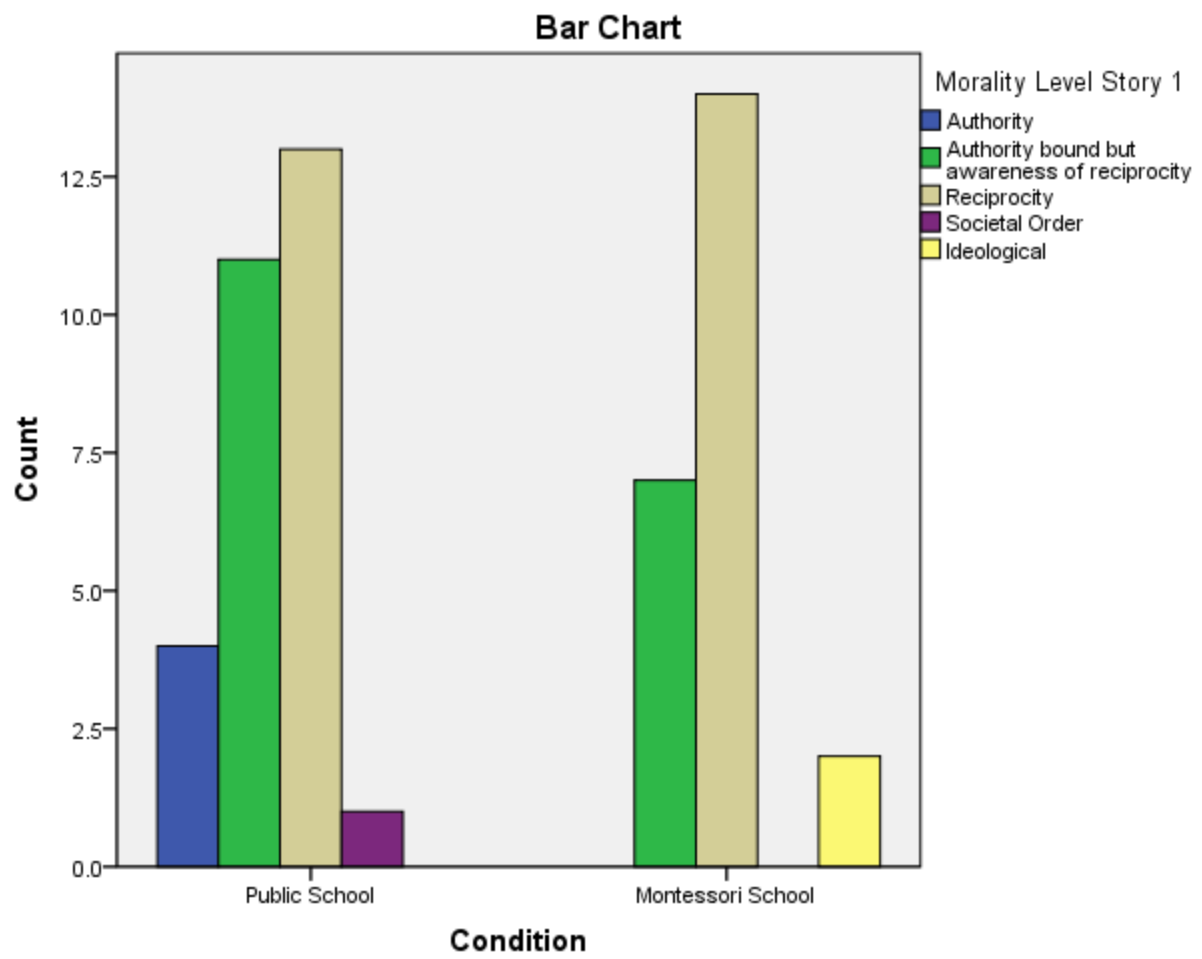


Figure 2: Bar Chart of Morality Level in Story 1

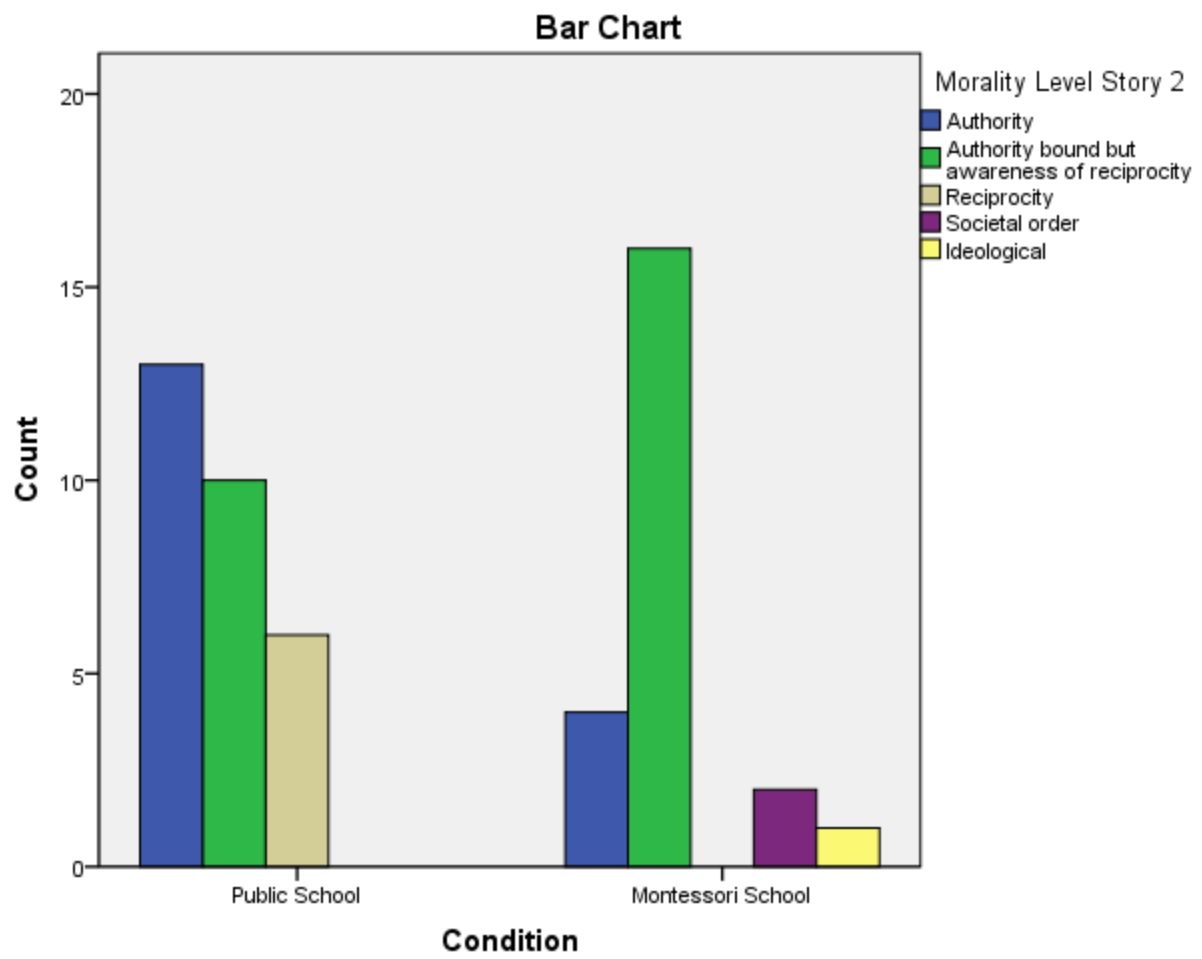


Figure 3: Bar Chart of Morality Level in Story 2

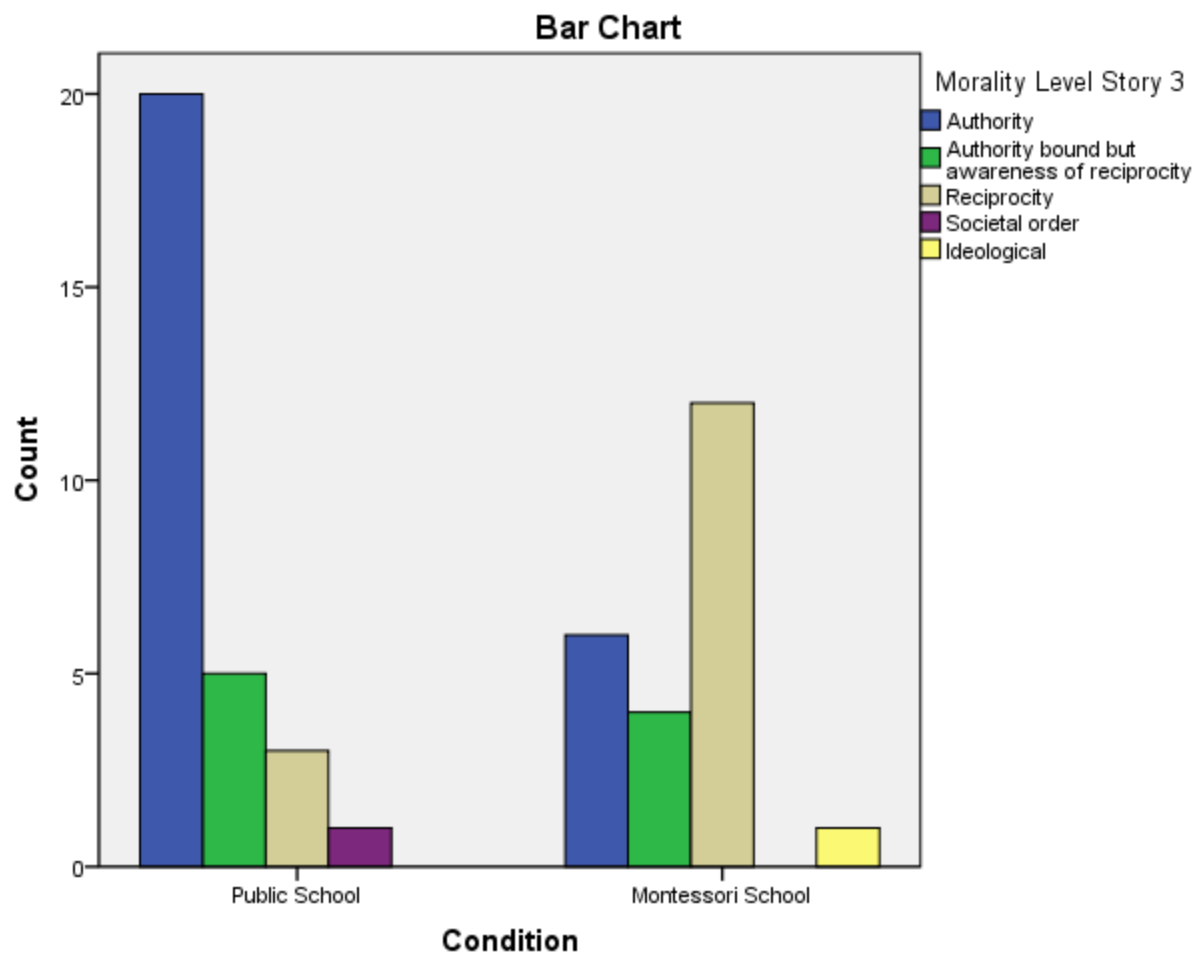


Figure 4: Bar Chart of Morality Level in Story 3

Authority vs. Altruism

A chi-square was conducted for story 1 to see if there was a difference between the two conditions as to whether their answers reflected authority or altruism, $\chi^2(1, N = 52) = 3.84, p = .05$. The same analysis was conducted for story two and three as well. For story two, $\chi^2(1, N = 52) = .17, p = .67$ which did not show significant results. For story three, $\chi^2(1, N = 52) = 8.74, p = .003$. When running a chi-square determining if sex was a factor for story three, it was approaching significance, $\chi^2(1, N = 50) = 3.68, p = .055$.

Means and Standard Deviations for Authority vs. Altruism

Condition	<u>Story 1</u>		<u>Story 2</u>		<u>Story 3</u>	
	Mean	Std.	Mean	Std.	Mean	Std.
Public	.69	.47	.17	.38	.17	.38
Montessori	.91	.29	.13	.34	.57	.51

Figure 5: Authority vs. Altruism in all three stories

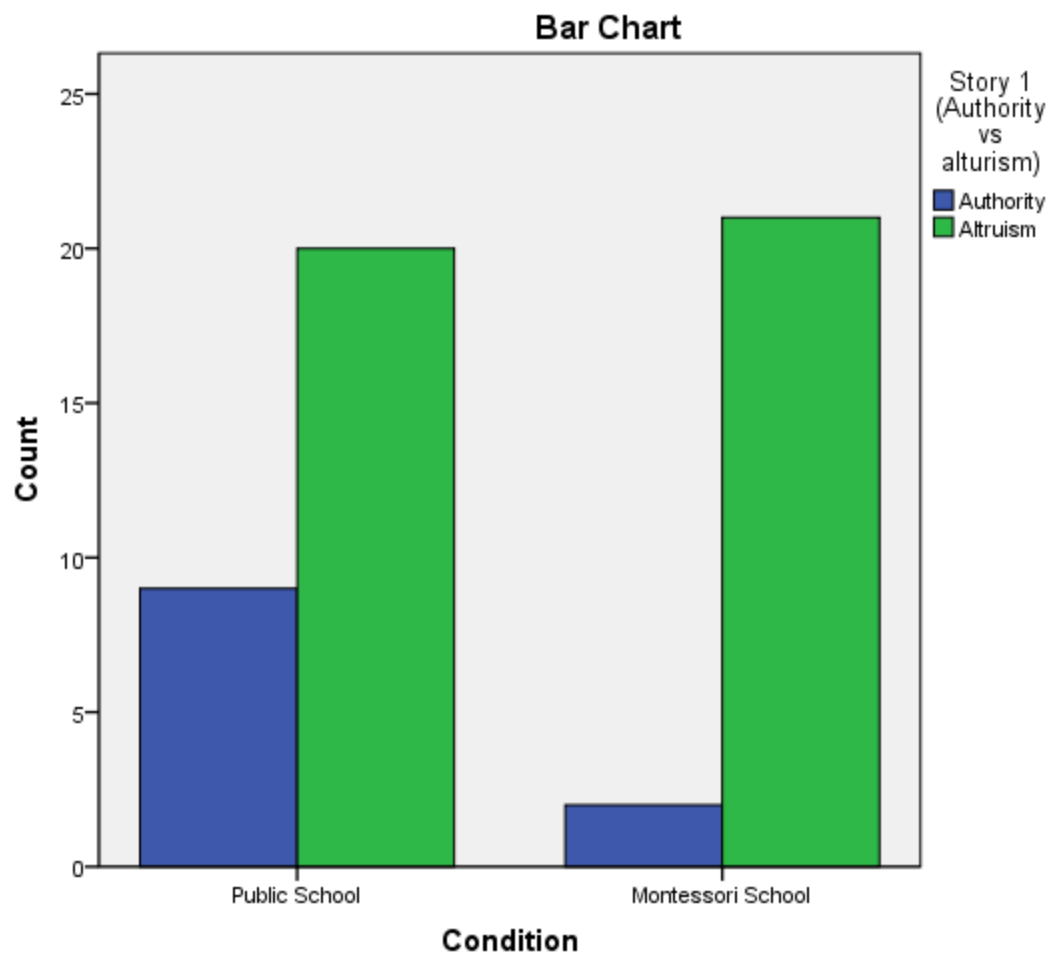


Figure 6: Bar Chart of Authority vs. Altruism in Story 1

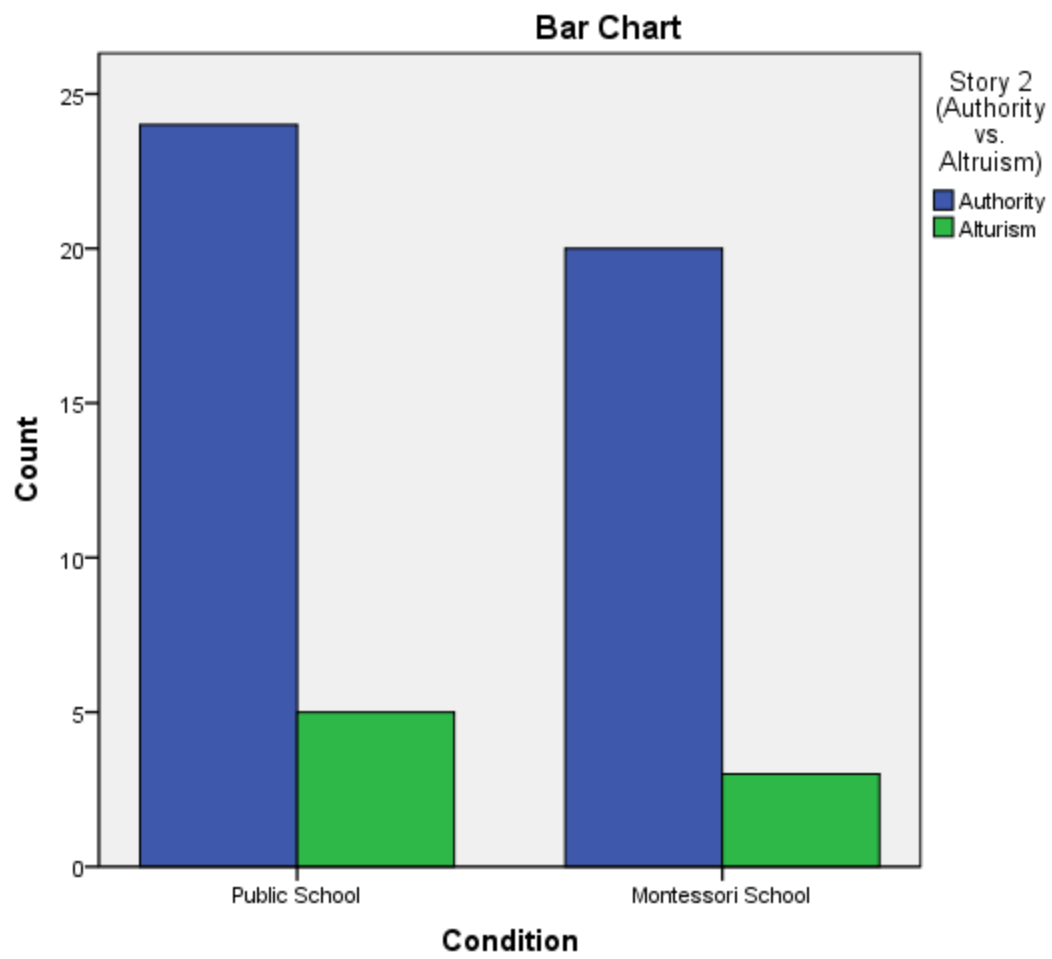


Figure 7: Bar Chart of Authority vs. Altruism in Story 2

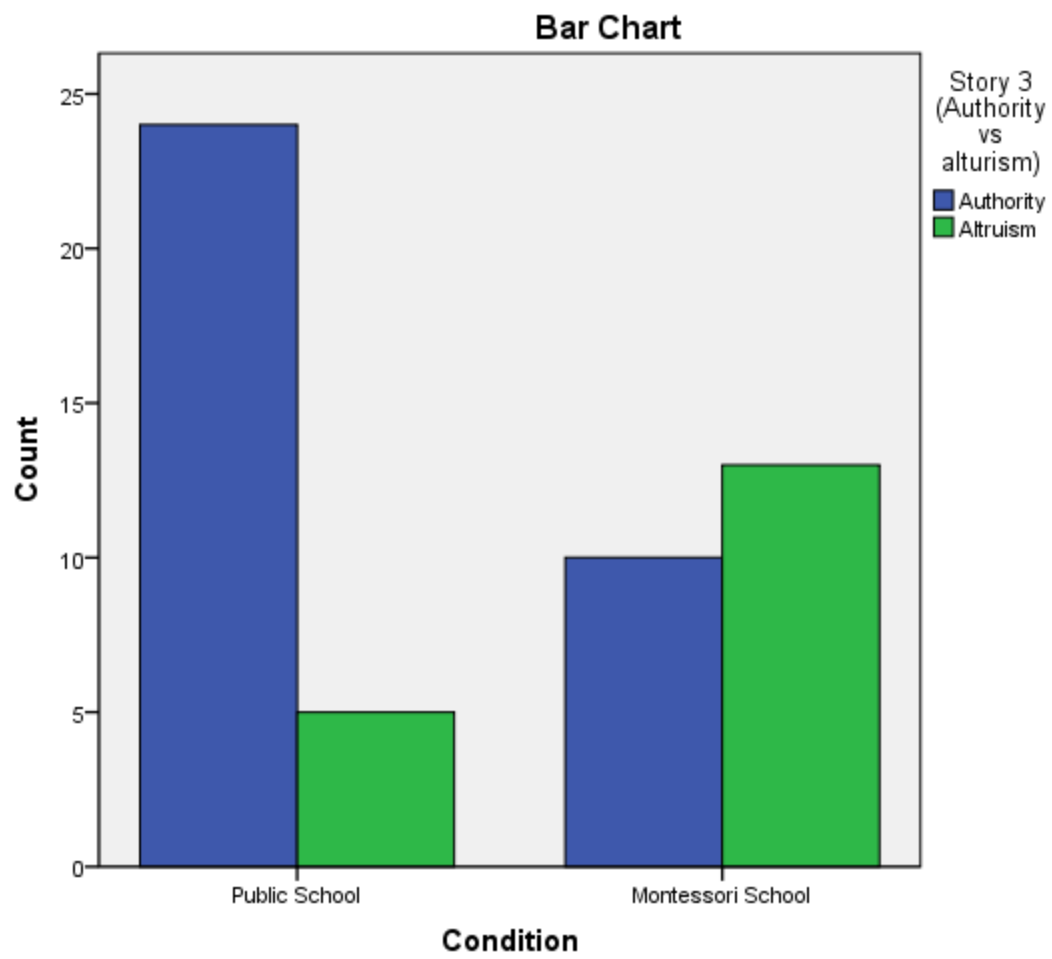


Figure 8: Bar Chart of Authority vs. Altruism in Story 3

Correlations and Chi-squares

Story 1: A chi-square test was done to see whether or not grade, regardless of school type had any effect on whether the children answered towards authority or altruism. This test revealed no significant differences between the grades, $\chi^2(3, N = 52) = 1.93, p = .59$. The same thing was also done to see if grade was a factor on morality level, this revealed no significant difference, $\chi^2(12, N = 52) = 11.97, p = .45$. There were some interesting correlations between whether the child answered towards authority or altruism and parent's income $r(49) = .31, p = .027$. There were also some correlations between the child's morality level and parent's income, $r(49) = .29, p = .039$ and how often the parent volunteers at the child's school, $r(47) = -.39, p = .006$.

Story 2: A chi-square test was done to see whether or not grade, regardless of school type had any effect on whether the children answered towards authority or altruism. This test revealed no significant differences between the grades for this, $\chi^2(3, N = 52) = 3.21, p = .36$. The same thing was also done to see if grade was a factor on morality level, this revealed no significant difference, $\chi^2(12, N = 52) = 7.85, p = .80$. There was a correlation between the whether the child answered towards authority or altruism and the parent's awareness of school philosophy, $r(48) = .35, p = .014$. There were also significant correlations between the child's morality level and parent's income, $r(49) = .28, p = .047$ and whether the parent practiced the school philosophy at home, $r(48) = .30, p = .033$.

Story 3: A chi-square test was done to see whether or not grade, regardless of school type had any effect on whether the children answered towards authority or altruism. This test

revealed no significant differences between the grades for this, $\chi^2(3, N = 52) = .21, p = .98$. The same thing was also done to see if grade was a factor on morality level, this revealed no significant difference, $\chi^2(12, N = 52) = 5.95, p = .92$. There was a correlation between whether the child answered towards authority or altruism and whether the parents practice the school philosophy at home, $r(48) = .32, p = .023$.

Public School Based Analysis

The data was then split between conditions to properly analyze the differences between the two school types. There was a strong correlation between the child's morality level on story one and how often the parent volunteers at the school, $r(25) = -.52$, $p = .005$; there was also a correlation on the morality level on story one and the parent's income level, $r(27) = .37$, $p = .046$. There was a significant relationship between the child's morality level on story one and the parent's level of education, $\chi^2(15, N = 27) = 28.26$, $p = .02$. There was a significant relationship between the child's answer leaning towards authority or altruism in story two and whether the parent practiced the school philosophy at home, $\chi^2(3, N = 28) = 10.21$, $p = .017$. There was also a significant relationship between the child's answer leaning towards authority or altruism for story two and the parent's political orientation, $\chi^2(5, N = 28) = 11.10$, $p = .05$. For story three, there were correlations between the child's morality level and the parent's political orientation, $r(25) = .39$, $p = .042$.

Montessori School Based Analysis

For story one, the child's morality level was correlated with the parent's awareness of school philosophy, $r(20) = .49$, $p = .021$. There was a significant relationship between the child's morality level on story one and whether their answer for story two leaned towards authority or altruism, $\chi^2(2, N = 23) = 6.00$, $p = .05$. Not surprisingly there was also a significant relationship with the child's morality level for story one and story three, $\chi^2(6, N = 23) = 12.87$, $p = .045$. There were no significant correlations for story two. For story three, whether the child's answer represented authority or altruism was correlated with the parent's political orientation, $r(20) = -.43$, $p = .047$, and with how much the parent's practiced the school philosophy at home, $r(20) =$

.50, $p = .018$. There was a significant relationship between the child's answer leaning towards authority or altruism in story three and to what extent the parent's practiced the school philosophy at home, $\chi^2(2, N = 22) = 8.79$, $p = .012$. There was also a significant relationship between the child's answer leaning towards authority or altruism in story three and the parent's religion, $\chi^2(5, N = 22) = 12.62$, $p = .027$.

A t-test was done to see whether or not parental income, level of education or political orientation had any effect were significantly different for both conditions. The t-test for income was not significant however it was approaching significance, $t(49) = 1.82$, $p = .075$. Level of education was different, $t(47) = 2.45$, $p = .018$. Political orientation was not significant nor was it approaching significance.

DISCUSSION

The main effect this thesis was interested in and what the results show, is that for story 1 and story 3, there were significant differences between the Montessori and public school children as far as their morality score and whether or not their answers reflected authority or altruism. The Montessori children were more likely to answer towards altruism and score higher on the morality scale used for this study. These effects were not due to the difference in parental income of the two conditions as the t-test did not show a significant difference.

When looking more in depth, in story one, there was a positive correlation between whether the child would answer towards authority or altruism and the parent's income level. This means that the more money their parents made the more likely they were to answer towards altruism. The child's morality level was positively correlated with the parent's income level and negatively with how often the parent volunteers at the school. The more the parents earned, and the less they volunteered at the school, the higher the child's morality score was.

Story two is the piece of the puzzle that does not seem to fit in with the rest. There were no significant differences between the two groups. The reason for this and it can be seen in the literature, is that this particular dilemma is out of date. The other two stories are things that could still happen, whereas with story two there are many reasons for the children to get confused and answer in terms that are not a part of the dilemma. They do not fully understand the protagonist's plight. When looking back at the children's answers to this particular dilemma, 14 out of the total 52 children mentioned something about getting a loan or borrowing money, making the medicine themselves, or getting a lawyer. Out of these 14 children, 10 were women.

Also, as Gilligan points out, women tend to change and respond to this dilemma by asking for more details. She goes on to say that due to this, their answers are often misunderstood and regarded as a failure to comprehend the dilemmas (Gilligan, 1994, p.27). This is one of the limitations of Kohlbergian moral dilemmas. Despite this there were some correlations found. There was a positive correlation between whether the child's answer reflected authority or altruism and the parent's awareness of the school philosophy; the more aware the parent was the more likely the child was to answer towards altruism. There were also positive correlations between the child's morality level and the parent's income and to what extent the parent practiced the school philosophy at home. This being in line with the correlations found for story one.

For story three, aside from the main findings reported at the beginning of this section, there was only a positive correlation between whether the child's answer reflected authority or altruism and to what extent the parents practiced the school philosophy at home.

The two conditions were split to see what kinds of correlations were found per condition in relation to parent's answers on the survey such as religion, politics, etc. and what kind of impact they had on the children's answers. It seemed that for the public school children, when taking their data separate of the Montessori school children, for story one the child's morality score was negatively correlated with how often the parent volunteers at the school -- meaning that the more the parent volunteers the lower the morality score for the child was. This was also seen earlier showing it generally has something to do with income level -- a parent with a job is not going to spend as much time volunteering at their child's school as a parent without a job.

Their morality score for story one was also positively correlated with the parent's income level, meaning the higher the income level the higher the morality score. Their answers to story two were negatively correlated with the parent's political orientation. This means that the more conservative the parents were, the lower their morality score was and they were more likely to answer towards authority. For story three, the children's morality score was positively correlated with the parent's political orientation. This means that the more conservative the parents were, the higher the child's morality score was.

For the Montessori school children only, on story one, the child's morality level was positively correlated with the parent's awareness of the school philosophy meaning that the more aware the parent was the higher the child's morality level was. This almost goes to indicate that there might be something about the school philosophy itself that is making the child's score higher. What is interesting and in contrast with the public school children is that for story three, whether the child's answer reflected authority or altruism was negatively correlated with the parent's political orientation; meaning that the more conservative the parent was the less likely the child would answer towards altruism. There was also a strong correlation between whether the child's answer reflected authority or altruism and whether the parents practiced the school philosophy at home; meaning that the more they practiced it at home, the more likely the child would answer towards altruism. This goes to suggest that there could be something about the Montessori philosophy that breeds more altruistic thoughts. One thing to keep in mind while understanding these results is that these correlations and statistics do not exactly equal to causality, these are just trends and showing that there is a difference between the two groups.

The major finding that there was a significant difference between the Montessori children and the public school children is in line with the hypothesis previously purported by this thesis. There are several possible reasons why the Montessori children answered more towards altruism than authority; one of them being in line with evolutionary ethics. The basic Montessori principle of letting the child develop naturally without fully interfering and telling the child how to develop like the public school educational philosophy does, allows the ethics given by evolution to truly come out without too much social contamination. It could also have to do with the fact that the Montessori teacher does not necessarily tell the children what to do, the children know what they have to get done within a week's time and they self-regulate how much time they spend on each item; the child is their own authority. In the public school system the teacher is the authority and is constantly telling the children what to do. This sort of atmosphere would indoctrinate the child into conceiving morality more towards authority as well. For the Montessori children the authority and drive comes from an internal factor whereas for the public school children that authority and drive comes from an external factor such as a teacher. Another reason for the results is that in the Montessori educational philosophy, there is an ideology of peace built-in. "The Montessori classrooms by their nature reduce undesirable behavior as the students are genuinely engaged in their work" (Duckworth, 2008, p.36). The Montessori system attempts to instill such values as global citizenship, personal responsibility and respect for diversity implicitly through its education (Duckworth, 2008, p.34). These ideals help foster self-regulated peace within the children in the Montessori system. In the public school system, if there is a conflict, the child is sent to an authority figure who deals with it; whereas in the Montessori system the teacher would have the child or children go to a corner and come up with

a solution to the conflict on their own. The teacher only gets involved if the conflict is severe or if the children cannot come to a solution on their own. One thing that is not sure is if it is a single one of these reasons or a combination of all of them that has provided the results found in this thesis. Further study needs to be done in this area to fully understand exactly where this effect arises from.

The reason why the Montessori children have higher morality level scores is highly related to the reasons why their answers reflected altruism more than authority. In the Montessori classroom the child hardly has to deal with authority and is dealing with his or her peers constantly. Therefore they would develop the sense of peer reciprocity earlier than in public school where the child is constantly dealing with authority, whether it is the teacher or the principal or the guidance counselor. Therefore the child's moral growth might get stunted and remain in the authority base level longer than the Montessori child's.

The implications and applications of these findings are vast. It allows the Montessori schools to show off the fact that their children might be developing in moral cognition faster than their public school counterparts. It also goes to show the effect that educational environments can have on a child's moral development. The results of this thesis also help parents understand the developmental implication of sending their child to a certain school. One of the most important applications is that it shows that the Kohlberg Heinz dilemma story, even modified versions of it, is no longer one that gives any relevance to the children and needs to be rethought or taken away completely.

Although there were some significant findings, there are also some limitations to the study. First and foremost is that of location. This study was done in three different schools in the Central Florida region. The public school system, while regulated by the Department of Education, is different for every state and thus the results could be different using other states' public education systems. It could also be different based on region, for example the south is infamously titled "the Bible Belt" and thus the moral development and environment of the children would be different in other regions of the country. The study is also limited by its scope. While for this study age did not make a statistically significant difference in the child's morality score or whether they answered authority or altruism, there should be further research done using a wider age range to see if that makes a difference. These results should not be generalized to include other states, regions, or countries. One of the biggest limitations to this study is that it is a correlational study; the subjects were not randomly assigned to groups. Therefore no solid conclusions can be drawn however; it should show a trend and incur further research to be done

Based on the results gathered by this thesis it is clear that more research does need to be done in this area. There are some suggestions that can be put forth for the future direction of this research. First, as mentioned above, to widen the scope of the study by including a wider age group of participants. Second would be to include a religious school as a comparison group and also perhaps include a non-religious private school as well. Another suggestion would be to give the children multiple measures of moral cognition to see if it is just this particular test that is getting this effect or if it is an overall effect. One thing that this researcher would have liked to have done, given the appropriate time, is to see whether the public school children eventually

catch up to the Montessori children; in other words to perform a longitudinal study with the same group of kids over the course of five or ten years. Then it could be fully understood if this effect lingers on, or levels off.

APPENDIX A: MORAL DILEMMA STORIES

1. Mr. Tony was working at the counter in a grocery store. The owner of the grocery store had gone out for the day and Mr. Tony was all alone in the store. A boy came in and wanted a loaf of bread, but he did not have the money to pay for it. Mr. Tony knew that the boy's father was out of work and they didn't have enough food at home. Mr. Tony could not decide whether he should give the boy the bread when it was not his to give, or should he let the boy and his family go hungry. Mr. Tony himself did not have the extra money to buy it for the boy, he just earns enough to pay for food for his own family. What should Mr. Tony do? Why?
2. A woman was in great pain from a special kind of sickness. Her husband was very poor and could not borrow enough money to buy the special medicine that would make the pain stop. He told the doctor that his wife was suffering so much, and begged the doctor to sell the medicine at a cheaper price or let him pay for it later. But the doctor said no. The husband could not decide whether he should break in and take the medicine or let his wife suffer. What should the husband do? Why?
3. Mr. Bill was the boss of a big company. He gave his workers the highest pay and used his money to build hospitals and help the poor in his town. One day a stranger, Mr. Jack came to town and recognized that Mr. Bill was a man who had escaped from prison 10 years ago and the police were still looking for him. Mr. Jack could not decide whether he should call the police and tell them that Mr. Bill was an escaped crook from another state, or not do anything about it, because Mr. Bill was doing a lot of good for the town. What should Mr. Jack do? Why?

APPENDIX B: MORAL JUDGMENT SCORING CRITERIA

Level 1: Authority

A rule is right because it is a rule. A rule is made to be obeyed. Conformity to rules is due to fear or avoidance of punishment. One cannot lie to an adult.

Level 2: Authority bound but awareness of reciprocity

Although awareness of reciprocal peer relations exists, there is still a tendency toward resolving conflicts benefiting to self or adherence to authority. Rules can be broken due to personal needs.

Level 3: Reciprocity

Reciprocity involves mutual give and take and a respect for other's rights. Rules or conformity to them are based on cooperation between peers. Respect for peer's rights is more important than rules.

Level 4: Societal order

Conformity to rules or the law is based on a need to maintain societal order not just to obey per se. Laws are viewed as having rational bases and are necessary for proper functioning of society and the protection of individual rights.

Level 5: Ideological

The ideological level is based on principles rather than rules or laws. These principles are based on universal human values. The carrying out of such principles might have derogatory effects on the individual. He values these principles above his own self-interests.

APPENDIX C: PARENT SURVEY

This survey in no way attempts to make judgments about morality and whether religion or political affiliations affect them. This is merely a demographic survey with a short questionnaire attached merely for informational purposes only. All of your answers will be held in the utmost confidentiality and will only be known to me, the experimenter. Please answer as honestly as you can.

Parent Survey

1) Birth Year

2) Gender

A. Female

B. Male

3) Your ethnic and racial background

A. African-American

B. Chinese

C. Filipino

D. Indian

E. Japanese

F. Korean

G. Southeast Asian

H. White Caucasian – Non Hispanic

I. Hispanic or Latino

J. Mexican

K. American Indian, Alaskan Native

L. Unknown or not reported

4) Where were you born (city/region, country)

(Option to enter text)

5) What is your currently annual income level

a. \$0 - \$10,000

b. \$10,001 - \$20,000

c. \$20,001 - \$30,000

d. \$30,001 - \$40,000

e. \$40,001 - \$50,000

f. \$50,001 - \$60,000

g. \$60,001 - \$70,000

h. \$70,001 - \$80,000

i. \$80,001 - \$90,000

j. \$90,001 - \$100,000

k. \$100,001- UP

l. Choose not to disclose

6) Your political party preference:

a. Democratic

b. Republican

c. Independent

d. Other

e. Decline to answer

7) Which of the following best describes your political orientation (please circle one)?

A. Very liberal

B. Somewhat liberal

C. Slightly liberal

D. Neither liberal nor conservative

E. Slightly conservative

F. Somewhat conservative

G. Very conservative

8) What religion are you affiliated with?

a. Nonreligious Secular

b. Agnostic

c. Atheist

d. Christian Protestant

e. Christian Catholic

f. Judaism

g. Buddhism

h. Hinduism

i. Islam

j. Unitarian-Universalism

k. Wiccan or Pagan

l. Spiritualism

m. Native American

n. Not Listed

9) Highest level of education you have obtained:

a. Some high school or less

b. High school diploma

c. Some college (less than 2 years)

d. Two-year college degree (AA)

e. Four-year college degree (BA or BS)

f. MA/PhD, MD, MBA, Law degree

10) City and state where you currently live:

11) Zip code where you currently live: _____

12) Why did you send your child to the particular school that they attend?

13) How often do you volunteer at your child's school in a given month?

a. 0-5 hours

b. 5-10 hours

c. 10-15 hours

d. 15-20 hours

e. 20+ hours

14) To what extent are you aware of the school's teaching philosophy?

a. Very much aware

b. Somewhat aware

c. Undecided

d. Not really aware

e. Not aware at all

15) To what extent do you extend and practice the school's teaching philosophy in the home setting?

a. Very much

b. Somewhat

c. Undecided

d. Not really

e. Not at all

16) What is your personal ethics based on? (i.e. religion, personal decisions, etc)

Parent Name: _____ Child's name: _____ Child age: _____ Child Sex: male / female

PAQ-R Instructions: For each statement below circle the number that best describes your beliefs about parenting your child. There are no right or wrong answers. We are looking for your overall impression regarding each statement. In the right column, please **CIRCLE** your answer for each item: SA = Strongly Agree; A = Agree ; N = Neither Agree nor Disagree; D = Disagree; SD = Strongly Disagree.

1. In a well-run home children should have their way as often as parents do.	1. SA A N D SD
2. It is for my childrens' own good to require them to do what I think is right, even if they don't agree.	2. SA A N D SD
3. When I ask my children to do something, I expect it to be done immediately without questions.	3. SA A N D SD
4. Once family rules have been made, I discuss the reasons for the rules with my children.	4. SA A N D SD
5. I always encourage discussion when my children feel family rules and restrictions are unfair.	5. SA A N D SD
6. Children need to be free to make their own decisions about activities, even if this disagrees with what a parent might want to do.	6. SA A N D SD
7. I do not allow my children to question the decisions that I make.	7. SA A N D SD
8. I direct the activities and decisions of my children by talking with them and using rewards and punishments.	8. SA A N D SD
9. Other parents should use more force to get their children to behave.	9. SA A N D SD
10. My children do not need to obey rules simply because people in authority have told them to.	10. SA A N D SD
11. My children know what I expect from them, but feel free to talk with me if they feel my expectations are unfair.	11. SA A N D SD
12. Smart parents should teach their children early exactly who is the boss in the family.	12. SA A N D SD
13. I usually don't set firm guidelines for my childrens' behavior.	13. SA A N D SD
14. Most of the time I do what my children want when making family decisions.	14. SA A N D SD
15. I tell my children what they should do, but I explain why I want them to do it.	15. SA A N D SD
16. I get very upset if my children try to disagree with me.	16. SA A N D SD
17. Most problems in society would be solved if parents would let their children choose their activities, make their own decisions, and follow their own desires when growing up.	17. SA A N D SD
18. I let my children know what behavior is expected and if they don't follow the rules they get punished.	18. SA A N D SD
19. I allow my children to decide most things for themselves without a lot of help from me.	19. SA A N D SD
20. I listen to my children when making decisions, but I do not decide something simply because my children want it.	20. SA A N D SD
21. I do not think of myself as responsible for telling my children what to do.	21. SA A N D SD
22. I have clear standards of behavior for my children, but I am willing to change these standards to meet the needs of the child.	22. SA A N D SD
23. I expect my children to follow my directions, but I am always willing to listen to their concerns and discuss the rules with them.	23. SA A N D SD
24. I allow my children to form their own opinions about family matters and let them make their own decisions about those matters.	24. SA A N D SD
25. Most problems in society could be solved if parents were stricter when their children disobey.	25. SA A N D SD
26. I often tell my children exactly what I want them to do and how I expect them to do it.	26. SA A N D SD
27. I set firm guidelines for my children but am understanding when they disagree with me.	27. SA A N D SD
28. I do not direct the behaviors, activities or desires of my children.	28. SA A N D SD
29. My children know what I expect of them and do what is asked simply out of respect for my authority.	29. SA A N D SD
30. If I make a decision that hurts my children, I am willing to admit that I made a mistake.	30. SA A N D SD

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